

Web Mapping Service:

*“So easy a ~~caveman~~
~~pointy-haired boss~~
lapsed scientist
can do it”*

Christopher Lynnes
Lapsed Seismologist

Web Map Service

- A simple way to serve pictures to a variety of clients and users
 - quick-look
 - browse
 - data visualizations

The Essence of WMS

- WMS returns only an image (no metadata)
- WMS must return exactly what the client asks for
 - The request is the metadata
 - Image width, height, geographic bounding box
- Server must interpolate as necessary

WMS Basics

- GetCapabilities: XML document describing available “layers”
- GetMap: image matching exactly what the client asked for

WMS Example

[http://localhost/cgi-bin/mapserv?map=maps/airibrad.map
&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap
&HEIGHT=600&WIDTH=1200&FORMAT=image/png
&LAYERS=AIRIBRAD_COLLAGE&SRS=EPSG:4326
&BBOX=-180,-90,180,90](http://localhost/cgi-bin/mapserv?map=maps/airibrad.map&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&HEIGHT=600&WIDTH=1200&FORMAT=image/png&LAYERS=AIRIBRAD_COLLAGE&SRS=EPSG:4326&BBOX=-180,-90,180,90)

WMS Example

<http://localhost/cgi-bin/mapserv?map=maps/airibrad.map>
← server “address”

[&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap](#)
← service info

[&HEIGHT=600&WIDTH=1200&FORMAT=image/png](#)

[&LAYERS=AIRIBRAD COLLAGE&SRS=EPSG:4326](#)

[&BBOX=-180,-90,180,90](#)

WMS Example

<http://localhost/cgi-bin/mapserv?map=maps/airibrad.map>
← *server "address"*

[&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap](#)
← *service info*

[&HEIGHT=600&WIDTH=1200&FORMAT=image/png](#)
← *image info*

[&LAYERS=AIRIBRAD COLLAGE&SRS=EPSG:4326](#)

[&BBOX=-180,-90,180,90](#)

WMS Example

<http://localhost/cgi-bin/mapserv?map=maps/airibrad.map>
← *server "address"*

[&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap](#)
← *service info*

[&HEIGHT=600&WIDTH=1200&FORMAT=image/png](#)
← *image info*

[&LAYERS=AIRIBRAD COLLAGE&SRS=EPSG:4326](#)
← *layer info*

[&BBOX=-180,-90,180,90](#)

WMS Example

<http://localhost/cgi-bin/mapserv?map=maps/airibrad.map> ← server “address”

[&SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap](#) ← service info

[&HEIGHT=600&WIDTH=1200&FORMAT=image/png](#) ← image info

[&LAYERS=AIRIBRAD COLLAGE&SRS=EPSG:4326](#) ← layer info

[&BBOX=-180,-90,180,90](#)

← longitude, latitude

3 Approaches

- Commercial
 - <http://www.opengeospatial.org/resource/products>
 - Best if this is your main thing
- Do-it-yourself
 - Best if adapting current services
- Open Source (e.g., MapServer)
 - Low-cost approach to adding WMS service

MapServer

- Developed at U. Minnesota, now OSGeo
- Open Source, wide community
 - O'Reilly book: Web Mapping Illustrated
- Installed, configured in a few hours
 - (From scratch, but with examples)

Quick Demo

Beyond the Basics

- Transparency
- Styles (e.g., contour vs. color-slice)
- Tiling
- On-the-fly imaging (via GDAL) of data...
- ...accessed via OPeNDAP
- TIME parameter
 - (but poor client support)